

Dicrotendipes weiqiangensis sp. nov. (Diptera: Chironomidae) from Zhejiang, China

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Abstract: *Dicrotendipes weiqiangensis* sp. nov. from Xianju National Park, Zhejiang, China is described and nominated. This new species is morphologically most similar to *D. nudus* Qi, Lin & Wang, 2012. It can be distinguished from the known species in the genus by R_{4+5} without seta and the shape of the superior volsella, which is semi-triangular viewed dorsally and spherical viewed laterally. Diagnostic characteristics of the male imago (e.g., wing, hypopygium, anal point and superior volsella) are illustrated. A key to the males of *Dicrotendipes* in China is also provided.

Key words: Culicoidea; taxonomy; key

中国浙江二叉摇蚊属一新种（双翅目：摇蚊科）

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摘要: 记述采自浙江省仙居国家公园韦羌山的二叉摇蚊属 1 新种: 韦羌二叉摇蚊 *Dicrotendipes weiqiangensis* sp. nov., 该新种与光裸二叉摇蚊 *D. nudus* Qi, Lin & Wang, 2012 相似, 区别于本属其它已知种的主要特征是 R_{4+5} 脉无刚毛及上附器的特殊形状 (背面观呈近三角状, 侧面观呈球状); 文中绘制了雄成虫的翅、生殖节、肛尖、上附器等特征图, 并提供了中国二叉摇蚊属已知种的分种检索表。

关键词: 蚊总科; 分类; 检索表

Introduction

The genus *Dicrotendipes* was erected by Kieffer in 1913, with *Dicrotendipes septemmaculatus* (Becker, 1908) as type species (Kieffer 1913). The immature stages of *Dicrotendipes* are found in both lentic and lotic habitats, but are generally more prevalent in lentic conditions (Epler 1988). More than 100 species have been described (Qi *et al.* 2012). Among them, 9 species have been reported from China (Chen *et al.* 2015).

Six species of *Dicrotendipes* have been recorded from Zhejiang Province: *D. inouei* Hashimoto 1984, *D. nervosus* (Staeger, 1839), *D. nudus* Qi, Lin & Wang, 2012, *D. saetanumerosus*

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Qi, Lin & Wang, 2012, *D. septemmaculatus* (Becker, 1908) and *D. tamaviridis* Sasa, 1981 (Wang 2000; Qi *et al.* 2012; Chen *et al.* 2015). In the present study, a new species in this genus is described from the Xianju National Park of Zhejiang Province based on male imagines caught by sweep-net. A key to the males of *Dicrotendipes* in China is also provided.

Material and methods

The morphological nomenclature follows Sæther (1980) and the abbreviations of parts measured follow Qi *et al.* (2012). The material examined was mounted on slides, following the procedures outlined by Sæther (1969). The type specimen is deposited in the College of Life Science, Taizhou University, China.

Key to adult males of *Dicrotendipes* known in China (modified from Cheng *et al.* 2015)

1. R₄₊₅ without setae 2
- R₄₊₅ with setae 3
2. Superior volsella digitiform, with short ventral extension *D. nudus* Qi, Lin & Wang
- Superior volsella semi-triangular viewed dorsally, spherical viewed laterally *D. weiqiangensis* sp. nov.
3. Small, membranous, triangular flap-like appendages present near base of anal point
..... *D. fusconotatus* (Kieffer)
- Base of anal point without appendages 4
4. Inferior volsella deeply bifid apically *D. septemmaculatus* (Becker)
- Inferior volsella with simple apex or apex bulbiform 4
5. Tergite IX with median setae 6
- Tergite IX without median setae 7
6. Anal point sharply reflexed ventrad; tergite IX with 6–14 setae *D. pelochloris* (Kieffer)
- Anal point not sharply reflexed ventrad; tergite IX with more than 30 setae
..... *D. saetanumerosus* Qi, Lin & Wang
7. Wing with more than 35 setae on R & R₁ 8
- Wing with less than 30 setae on R & R₁ 9
8. Apex of superior volsella expanded, inflated, anal point pyriform to elongate-elliptical
..... *D. nervosus* (Staeger)
- Apex of superior volsella not expanded, anal point spatulate *D. inouei* Hashimoto
9. Superior volsella with 3 short setae; cylindrical, curving outward; apex bare, expanded
..... *D. flexus* (Johannsen)
- Superior volsella with 9–10 short setae; pediform, apex not expanded *D. tamaviridis* Sasa

Taxonomy

Dicrotendipes weiqiangensis sp. nov. (Figs. 1–6)

Diagnostic characters. The male imago can be distinguished from all the known species in this genus by R₄₊₅ without seta and the shape of the superior volsella, which is semi-triangular viewed dorsally and spherical viewed laterally.

Male ($n = 5$).

Total length 3.33–3.68 mm. Wing length 1.80–2.03 mm. Total length/wing length 1.72–1.85. Wing length/length of profemur 2.00–2.25.

Coloration. Head, thorax and abdomen brown; legs yellowish-brown.

Head. AR 1.56–1.94. Temporal setae 9–12. Clypeus with 15–18 setae. Tentorium 100–115 μm long, 23–35 μm wide. Palpomere lengths (in μm): 25–38, 38–40, 140–150, 130–150, 230–260. L: 5th/3 rd 1.64–1.73. Frontal tubercle 12–17 μm long, 6.00–8.50 μm wide.

Wing (Fig. 1). Wing transparent, without markings. VR 1.09–1.12. B 2–5 setae, R with 14–15 setae, R_1 with 2–4 setae, and R_{4+5} without seta. Squama with 2–3 setae.

Thorax. Dorsocentrals 5–8, acrostichals 10–11, prealars 3–4. Scutellum with 3–6 setae.

Legs. Fore tibia with rounded scale lacking spur. Spurs on mid tibiae 33–38 μm and 27–28 μm long, including combs 17–22 μm and 20–22 μm long; spurs on hind tibia 40–45 μm and 35–40 μm long including combs 22–27 μm and 22–25 μm long. Width at apex of front tibia 55–63 μm , of mid tibia 60–63 μm , of hind tibia 60–70 μm . Lengths (in μm) and proportions of legs in Table 1.

Table 1. Lengths (in μm) and proportions for legs of *Dicrotendipes weiqiangensis* sp. nov.

	P ₁	P ₂	P ₃
fe	900–1000	775–825	875–950
ti	625–650	675–725	950–1000
ta ₁	1250–1300	350–400	625–675
ta ₂	550–600	200–220	300–325
ta ₃	500–525	125–150	250–275
ta ₄	400–425	70–75	125–150
ta ₅	200–325	50–75	90–100
LR	1.98–2.00	0.50–0.59	0.65–0.68
BV	0.90–0.96	2.07–2.32	1.72–1.76
SV	1.22–1.27	3.63–4.21	2.89–3.00

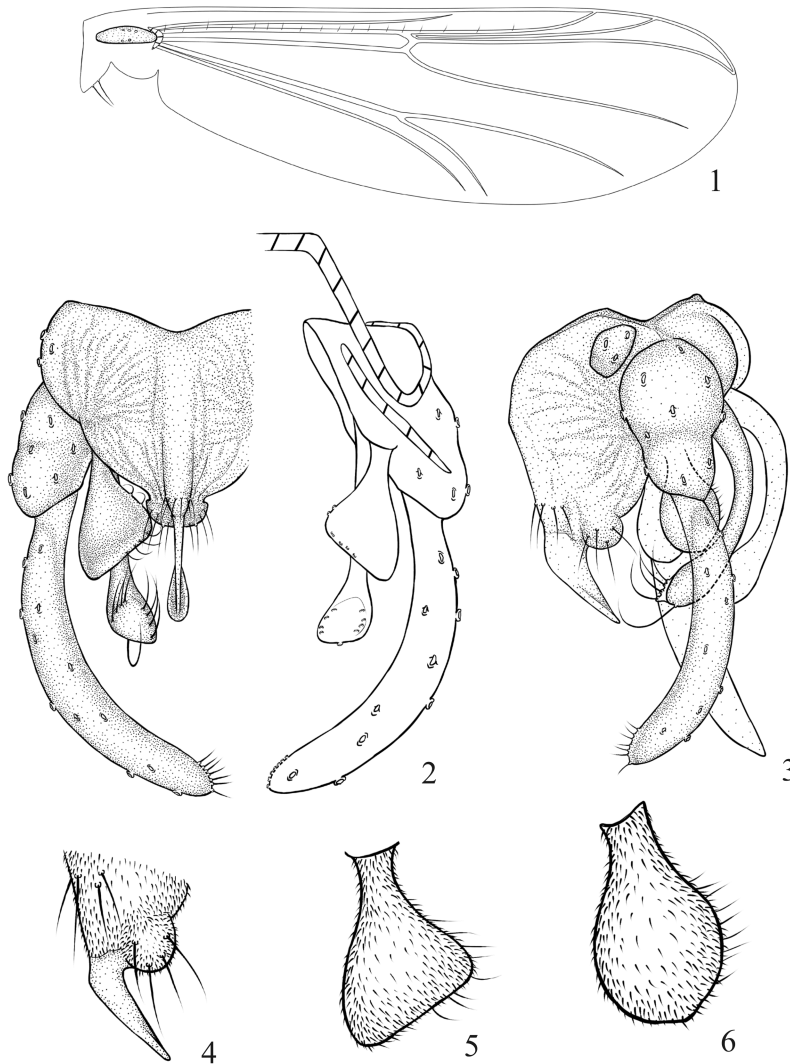
Hypopygium (Figs. 2, 3). Anal point 48–53 μm long, bare dorsally, slender, with basal peduncle and bulbous ventral extension, 5–6 dorsal basal setae and 8–10 lateral basal setae; apex of anal point swollen and rounded (Fig. 4). Laterosternite IX with 3–4 setae. Phallapodeme 80–100 μm long; transverse sternapodeme 40–60 μm long, laterally narrowed, medially broad, inverted U-shaped. Gonocoxite 122–165 μm long. Superior volsella 75–85 μm long, 45–53 μm wide; semi-triangular viewed dorsally (Fig. 5), spherical viewed laterally (Fig. 6); with numerous micro setae and 6–8 short apical setae. Inferior volsella 138–175 μm long; with tip of club moderately expanded, apex shallowly bifid, with 2 dorsal rows of 4–5 setae and 1 large ventral apical seta. Gonostylus 138–200 μm long; slightly curved medially, with 7–8 apical setae along inner margin. HR 0.81–0.89, HV 1.66–2.67.

Holotype. ♂, **China**, Zhejiang Province, Taizhou City, Xianju County, Xianju National Park, Weiqiang Mountain, 25-VIII-2015, sweeping net, Xin QI. **Paratypes.** 4♂, same as holotype.

Etymology. The species epithet is named after the type locality, using the Latin suffix *-ensis*, denoting place of origin.

Remarks. The shape of the superior volsella of *D. weiqiangensis* sp. nov. is characteristic of the genus. This new species closely resembles *D. nudus* Qi, Lin & Wang in R_{4+5} without

seta and the structure of hypopygium, but the superior volsella of *D. weiqiangensis* sp. nov. is semi-triangular viewed dorsally and spherical viewed laterally, whereas that of *D. nudus* Qi, Lin & Wang is digitiform, with a short ventral extension.



Figures 1–6. *Dicrotendipes weiqiangensis* sp. nov. ♂. 1. Wing; 2. Hypopygium, dorsal view; 3. Hypopygium, lateral view; 4. Anal point, lateral view; 5. Superior volsella, dorsal view; 6. Superior volsella, lateral view.

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